Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) An isolated nucleic acid molecule ~~comprising an~~ consisting essentially of a variant *ASMT* nucleic acid sequence, ~~wherein said nucleic acid molecule is at least ten nucleotides in length, and~~ wherein said variant *ASMT* nucleic acid sequence ~~comprises a nucleotide sequence variant at a position selected from the group consisting of position~~ is:

(a) at least fifteen contiguous nucleotides of SEQ ID NO:1, wherein said sequence includes one or more of nucleotide positions ~~2278, 2412, 2477,2534, 2615, 2838, 2840, 3370, 3398, 3435, 5791, 6176, 6324, 6373, 6426,~~ 8011, ~~8078, 10259, 12025, 12084,~~ 12327, ~~23855,~~ and 23936~~, 33672, 33765, and 33860~~ of SEQ ID NO:1, with the proviso that the nucleotide at position 8011 of SEQ ID NO:1 is thymine, the nucleotide at position 12327 of SEQ ID NO:1 is cytosine, or the nucleotide at position 23936 of SEQ ID NO:1 is thymine; or

(b) the complement of (a).

2. (Cancelled)

3. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a cytosine substitution for thymine at position 2278 of SEQ ID NO:1, an adenine substitution for guanine at position 2412 of SEQ ID NO:1, a guanine substitution for adenine at position 2477 of SEQ ID NO:1, a guanine substitution for cytosine at position 2534 of SEQ ID NO:1, a cytosine substitution for thymine at position 2615 of SEQ ID NO:1, an adenine substitution for cytosine at position 2838 of SEQ ID NO:1, or a cytosine substitution for guanine at position 2840 of SEQ ID NO:1.

4. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is an adenine substitution for thymine at nucleotide 3370 of position

3370 of SEQ ID NO:1, an insertion of a cytosine at position 3398 of SEQ ID NO:1, or a thymine substitution for guanine at position 3435 of SEQ ID NO:1.

5. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is an adenine substitution for guanine at position 5791 of SEQ ID NO:1.

6. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a guanine substitution for an adenine at position 6178 of SEQ ID NO:1, an adenine substitution for a guanine at position 6324 of SEQ ID NO:1, a cytosine substitution for thymine at position 6373 of SEQ ID NO:1, or a thymine substitution for adenine at position 6426 of SEQ ID NO:1.

7. (Currently Amended) The isolated nucleic acid molecule of claim 1, wherein said ~~nucleotide sequence variant is a thymine substitution for cytosine at~~ variant *ASMT* nucleic acid sequence is at least fifteen contiguous nucleotides of SEQ ID NO:1, wherein said sequence includes position 8011 of SEQ ID NO:1, with the proviso that the nucleotide at position 8011 of SEQ ID NO:1 is thymine.

8. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a guanine substitution for adenine at position 8078 of SEQ ID NO:1, a cytosine substitution for guanine at position 10259 of SEQ ID NO:1, a cytosine substitution for an adenine at position 12025 of SEQ ID NO:1, or a thymine substitution for a cytosine at position 12084 of SEQ ID NO:1.

9. (Currently Amended) The isolated nucleic acid molecule of claim 1, wherein said ~~nucleotide sequence variant is a cytosine substitution for thymine at~~ variant *ASMT* nucleic acid sequence is at least fifteen contiguous nucleotides of SEQ ID NO:1, wherein said sequence includes position 12327 of SEQ ID NO:1, with the proviso that the nucleotide at position 12327 of SEQ ID NO:1 is cytosine.

10. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a cytosine substitution for thymine at position 23855 of SEQ ID NO:1.

11. (Currently Amended) The isolated nucleic acid molecule of claim 1, wherein said ~~nucleotide sequence variant is a thymine substitution for cytosine at~~ variant *ASMT* nucleic acid sequence is at least fifteen contiguous nucleotides of SEQ ID NO:1, wherein said sequence includes position 23936 of SEQ ID NO:1, with the proviso that the nucleotide at position 23936 of SEQ ID NO:1 is thymine.

12. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a thymine substitution for cytosine at position 33672 of SEQ ID NO:1, an adenine substitution for guanine at position 33765 of SEQ ID NO:1, or an adenine substitution for guanine at position 33860 of SEQ ID NO:1.

13. (Currently Amended) An isolated nucleic acid encoding an ASMT polypeptide, wherein said polypeptide comprises an ASMT amino acid sequence variant relative to the amino acid sequence of SEQ ID NO:5, and wherein said amino acid sequence variant is ~~at a residue selected from the group consisting of 173, 287, and 306~~ a tryptophan at residue 173, a threonine at residue 287, or an isoleucine at residue 306.

14. (Cancelled)

15. (Withdrawn) An isolated ASMT polypeptide, wherein said polypeptide comprises an ASMT amino acid sequence variant relative to the amino acid sequence of SEQ ID NO:5, wherein said amino acid sequence variant is at a residue selected from the group consisting of 173, 287, and 306.

16. (Withdrawn) The isolated polypeptide of claim 15, wherein said amino acid sequence variant is a tryptophan at residue 173, a threonine at residue 287, or an isoleucine at residue 306.

17. (Withdrawn) The isolated polypeptide of claim 15, wherein activity of said polypeptide is altered relative to a wild type ASMT polypeptide.

18. (Withdrawn) An isolated nucleic acid molecule comprising an *ASMT* nucleic acid sequence, wherein said nucleic acid molecule is at least ten nucleotides in length, wherein said *ASMT* nucleic acid sequence has at least 99% sequence identity to a region of SEQ ID NO:3, wherein position 594 is a thymine, position 937 is a cytosine, and position 994 is a thymine, and wherein said region is selected from the group consisting of nucleotides 550 to 650 of SEQ ID NO:3, nucleotides 900 to 950 of SEQ ID NO:3, and nucleotides 951 to 1000 of SEQ ID NO:3.

19. (Cancelled)

20. (New) The isolated nucleic acid molecule of claim 1, wherein the isolated nucleic acid molecule is from 15 to 100 nucleotides in length.

21. (New) The isolated nucleic acid molecule of claim 20, wherein the isolated nucleic acid molecule is from 20 to 50 nucleotides in length.

22. (New) A vector comprising the isolated nucleic acid molecule of claim 1.

23. (New) The vector of claim 22, wherein the isolated nucleic acid molecule is from 20 to 50 nucleotides in length.